

AMENDMENTS TO THE SPECIFICATION

Strikethrough indicates material to be deleted, and underlining indicates material to be inserted.

Amendments to the Priority Claim listed on page 1 of the Specification

Amendment 1 to the Specification:

On page 1 of the specification, please amend the
CROSS REFERENCE TO RELATED APPLICATIONS AND PATENTS as shown:

~~CROSS REFERENCE TO RELATED APPLICATIONS AND PATENTS~~

a! ~~This application is a continuation of pending U.S. application 09/710,557; application 09/710,557 is a continuation-in-part of U.S. Patent 6,222,525 of which the positive teachings and disclosures are herein incorporated by reference. Application 09/710,557 is herein incorporated by reference for the positive teachings and disclosures therein. U.S. Patent 6,222,525 is a continuation-in-part of U.S. Patent 5,589,828. This application is also a continuation-in-part of pending U.S. application 09/510,572 filed as a continuation of U.S. Patent 6,102,802 of which the positive teachings and disclosures are herein incorporated by reference and the benefit of the filing dates claimed. The positive teachings and disclosures of U.S. Patent 5,589,828 are herein incorporated by reference. The positive teachings and disclosures of U.S. Patent 5,565,891 are herein incorporated by reference. The positive teachings and disclosures of U.S. Patent 6,102,802 are herein incorporated by reference.~~

~~Also herein incorporated by reference for the positive teachings and disclosures therein is U.S. Disclosure Document Number 381081 filed Nov. 22, 1995 which has been placed in the file of U.S. Patent 6,222,525. The instant application claims the benefits under 35 U.S.C 120, where permitted, of the filing dates of the above listed patents and or applications and parent applications thereof.~~

CROSS REFERENCE TO RELATED APPLICATIONS AND PATENTS

This Application 09/893,292 filed on June 26, 2001 is a Continuation of U.S. Application 09/721,090 filed on Nov. 21, 2000 now U.S. Patent 6,310,606.

Application 09/721,090 is a Continuation of U.S. Application 08/677,378 filed on July 5, 1996 now U.S. Patent 6,222,525.

Application 08/677,378 is a Continuation-in-part of U.S. Application 08/393,459 filed on Feb. 23, 1995 now U.S. Patent 5,565,891.

Application 08/677,378 is a Continuation-in-part of U.S. Application 07/847,619 filed on March 5, 1992 now U.S. Patent 5,589,828.

This Application claims under 35 USC 120 the benefits to the above earlier Applications.

Amendment 2 to the Specification:

On page 2 of the specification please amend the Description of the Prior Art as follows:

2. Description of the Prior Art:

a² All of the ~~references~~ References Cited or disclosures cited in the applications and patents which are above mentioned may be of interest, copies of which are of record in the specific application file wrappers, and the reader is requested / invited to review such references. All of the ~~references cited~~ References Cited in the above patents and applications listed in the "CROSS REFERENCE TO RELATED APPLICATIONS AND PATENTS" are not prior art, although some are, to the elected Independent Claims of the present invention as claimed, because through a chain of pendency, the present invention finds support in U.S. Patent 5,589,828 filed as an application on March 5, 1992.

Amendment 3 to the Specification:

On page 3 please make the following changes:

SUMMARY OF THE INVENTION

a³ The invention is new and or improved apparatus and or methods associated with human control or manipulation of objects, views or the like imagery shown on a display and associated or driven with or by a computer or the like electronics. The present invention as claimed finds substantial support in the description and

drawings in the ~~incorporated~~ referenced U.S. Patent 5,589,828.

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concl. From one viewpoint for example only, the invention is a hand operated controller structured for allowing hand inputs to be translated into electrical outputs, the controller structured with at least a sufficient number of sensors to allow controlling three-dimensional objects and three-dimensional navigating a viewpoint within a display. A tactile feedback vibration motor is mounted as a component of the controller for providing vibration to be felt by a hand operating the controller.

Amendment 4 to the Specification:

In the last paragraph on page 3 spanning to page 4 please make the following changes:

a4 Increased appreciation of the numerous structural arrangements and methods in accordance with the invention can be gained with continued reading and with a reading of the ~~incorporated disclosures and the disclosures~~ Applications / Patents made claim to for benefits under 35 U.S.C. 120.

Amendment 5 to the Specification:

On page 10, first complete paragraph please make the following changes:

a5 Another object of the invention is to provide a 6 DOF controller which is structured in such a manner as to allow the

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controller to be made with a relatively low profile input member, which offers many advantages in packaging for sale, operation in various embodiments and environments (such as a low profile 6 DOF handle integrated into a keyboard so that other surrounding keys can still be easily accessed) and functions of the device such as still allowing room for active tactile feedback means (electric motor, shaft and weight) within a still small low handle shape as indicated in the attached Fig. 21 in broken lines. "tactile feedback means" as herein used can be an equivalent to or that which is detailed in ~~the incorporated~~ U.S. Patent 5,589,828 which is shown and described therein basically as a motor with shaft and weight ~~on the shaft, the shaft~~ , the weight being offset so that when rotated, vibration occurs which can be felt by the hand(s) operating the controller.

Amendment 6 to the Specification:

On page 11 ~~first~~ full paragraph, please make the following changes:

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These, as well as further objects and advantages of the present invention will become better understood upon consideration of the remaining specification and drawings, as well as the ~~mentioned and incorporated~~ disclosures herein claimed for benefit under 35 USC 120.

Amendment 7 to the Specification:

On page 40, the first full paragraph thereof, please make the following changes:

a1 Rocker-arm structures 364 have at least the following structure: a mounting structure 332, which is structure essentially fixed to carriage 314 and is illustrated as a snap-fit design having two legs which snap into slots within plate 322; a fulcrum 334, illustrated in all figures as a living hinge located at the top of mounting structure 332 except in figure 24 where fulcrum 334 is illustrated as a more traditional cylindrical bore-and-core type hinge; at least one sensor actuating arm 336, and in all drawings rocker-arm structures 364 are illustrated as commonly having two arms for actuating two sensors one on each side of mount 332, except in drawings 26 and 27 where are illustrated one-armed variants; and finally rocker-arm structures 364 have a super-structure 338 by which the rocker-arm is activated or caused to move against and actuate the associated sensor(s). Super-structure 338 is the distinctive part of the different two armed rocker-arm types shown in Figures 20-22, of which are a V-slot type 340, an H-slot type 342, and a T-bone type 345 of which there are two rocker-arms being approximately identical but oriented perpendicular to one another and being called a first t-bone 344 and a second t-bone ~~346~~ 364 rocker-arm actuators.

Amendment 8 to the Specification:

On page 42 first full paragraph thereon, please make the following changes:

a8 Figure 26 and 27 show space savings structuring for the area of second platform 322. This space savings may be valuable in tightly constricted areas such as integration of the invention into computer keyboards and hand held remote control devices. The layout of second platform 322 as illustrated in figures 20-22 is shown by a dashed line indicating the original larger perimeter ~~370~~ 371 the area of the newer smaller platform 322 shown by solid line 372 and first t-bone rocker-arm 346 has been divided into two separate one-armed type 348 actuators each with its own mount 332, fulcrum 334, sensor actuating arm 336, and super structure 338.

Amendment 9 to the Specification:

On page 45 last paragraph bridging page 46, please make the following changes:

a9 Figure 37 shows a right angle simple switched sensor package as is commonly available in the industry. It is comprised of a non-conductive rigid plastic body 600 supported by electrically conductive solder mounting tangs 606 and 608 which are typically made of metal and are also called terminals. Electrically conductive tang 606 passes from the exterior of body 600 to the

interior where it resides in a generally peripheral position of an internal cavity of body 600, and electrically conductive tang 608 passes from the exterior of body 600 to the interior where it resides in a generally central position of the internal cavity. Positioned over the internal portions of tangs 606 and 608 is a metallic dome cap 604 having resilient momentary "snap-through" characteristics. Metallic dome cap 604 typically resides in electrical contact with tang 606 on the periphery and typically not in contact with centrally positioned tang 608. Positioned to depress dome cap 604 is a plunger 602 which is generally made of non-conductive rigid plastic material. Dome cap 604 and plunger 602 are typically held in place by a thin metallic plate 610 which is fixed to body 600 by plastic melt riveting or other means. Plate 610 has an aperture large enough for a portion of plunger 602 to protrude to be pressed upon by an outside force and thus to depress conductive dome cap past a tactile snap-through threshold and down onto centrally disposed conductive tang 608, thus completing an electrically closed circuit between tangs 606 and 608.

Amendment 10 to the Specification:

On page 52 in the second full paragraph, please make the following changes:

Figure 45 shows a rotating member rocker-arm actuator 364

mounted on circuit board sheet 322 and a bi-directional sensor 750 such as a rotary encoder or potentiometer solder mounted to circuit board sheet 322. The potentiometer (variable resistor) has a rotary shaft 753 and terminals 755, terminals 755 are solder mounted to the circuit board sheet 322. Bi-directional sensor 750 is shown [and] operationally connected to rocker arm 336 by a rack and pinion type gear assembly with the rotary shaft 753 to rotary sensor 750 bearing a small gear or pinion gear 752 which is activated by riding on an arced gear rack 754 fixed to one end of rocker-arm actuator 336 and passing freely through an aperture 756 in sheet 322.

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